Stein et al.   S/N: 10/605,738

In the Specification

Please amend paragraph [0018] as follows:

[0018] Fig. 1 is a perspective view of a welding-type system 10 suitable for a number of welding processes including tungsten inert gas (TIG) welding and stick welding. The welding-type system 10 includes a power source 12 disposed within an enclosure 14. Enclosure 14 is defined by a base 16, front and back panels 18a, 18b, and a pair of side panels 20a, 20b attached to the base ~~12~~16. A top cover 22 having a handle 24 is secured to the pair of side panels 20a, 20b to form enclosure 14. The front panel includes control knobs 26 and outlets and receptacles 28 to facilitate connection of welding accessories to the enclosure. For example, an electrode weld output terminal 30 is used to connect a torch or other welding-type component 32 to the power source via cable 34. The torch is designed to hold a tungsten electrode 35. To complete a welding circuit, a workpiece 36 is introduced to a weld by a clamp 38 that is also connected to the power source by cable 40. A gas cylinder 39 is used to store shielding gas which is delivered to the torch during the welding process.

Please amend paragraph [0022] as follows:

[0022] Cooling system 44 also includes a motor assembly 58 to drive pump 48 and a heat exchanger 60 and fan assembly 61 operationally connected to one another to remove the heat carried by the coolant from the torch. During one operational embodiment, the pump 48 draws coolant from tank 46 and delivers the coolant to torch 32 through coolant path 49. The coolant absorbs heat from the torch and carries the heated coolant to heat exchanger via path 62. The heat exchanger 60 may include a coiled radiator to remove the heat from the coolant to the surrounding atmosphere and dissipated by fan 61. The cooled coolant is then re-deposited in tank 46 and further allowed to cool before re-circulated back to torch 32. As illustrated, cooling system 44 is integrated within the welder or power source 12. However, the cooling system 44 may be a modular or portable unit separately mounted to the power source or other welding or transport equipment.

Please amend paragraph [0026] as follows:

2

Stein et al.   S/N: 10/605,738

[0026] Fig. 3 illustrates torch 32 as having an elongated tubular body 64 connected to a handle 66. The handle 66 is relatively hollow which allows for extension of a water hose 68, power cable 70, and a gas hose 72. Hose 68 provides a coolant jacket that facilitates the ingress and egress of coolant to and from the torch. Alternately, torch 32 may be constructed to have an input hose and an output hose for carrying coolant to and from the torch. As such, heat generated within the torch is carried away to prevent overheating of the torch. Gas hose 72 facilitates the flow of shielding gas to the weld. Power cable 70 includes an adapter ~~76~~ 74 to connect the weld cable from the power source to the torch.

Please amend paragraph [0027] as follows:

[0027] Referring now to Fig. 4, the steps of a control algorithm to adaptively regulate cooling of a torch are set forth. The process begins at START 100 with powering-up of the power source, the coolant assembly, and other components of the welding process are likewise powered. Once the user identifies the welding process to be used through appropriate switches on the power source, a determination is made at 102 whether a TIG welding process is to be carried out. Since some welding processes do not require coolant circulation and power sources are capable of carrying out more than one process, the aforementioned determination is preferred and reduces the likelihood that an operator would forget to activate the cooling system for a TIG welding session. If a TIG welding process is not selected 102b, the cooling system is placed in a stand-by mode 116. If TIG welding is selected 102a, ~~T~~the controller 50 then detects whether a valid arc 104 is present at the weld. That is, the controller determines if a welding arc ~~40~~ 52 has been struck between the welding torch ~~30~~ 32 and the work piece 32 indicative of welding commencement. If a valid arc is present 104a, ~~T~~the controller 50 transmits a circulation commencement signal to the cooling system ~~28~~ 44 to activate motor 58 and pump 48 at 106 such that coolant is circulated through the welding torch. If a valid arc is not detected 104b, the controller determines if remote operation has been activated 108. If so 108a, coolant is caused to circulate upon manual start-up of the welding power source ~~26~~ 12 at step 110, 110a. The controller then transmits a circulation commencement signal to activate the solenoid pump ~~62~~ 48 and cause coolant flow through the torch at step 106. If the controller does not detect a manual start 110b or remote operation 108b, the controller determines if a specified time period has expired after termination of the arc at 112. If the time period has not expired 112a, coolant circulation is maintained at 106. If not 112b, the algorithm proceeds to step 114. The controller

3

is configured to regulate the integrated cooling system such that coolant flow is maintained after deactivation of the welding torch until a temperature of the liquid coolant or torch falls below a certain value. The controller 50 compares temperature feedback from a sensor with a first set point temperature to determine if circulation should be maintained. In this regard, if the temperature of the liquid coolant does not exceed the temperature set point 114b, then the integrated cooling system 28 44 is placed in stand-by mode 116. That is, the controller 50 is configured to repeatedly detect a coolant temperature signal from one or more temperature sensors and if coolant temperature exceeds a threshold 114a, circulation continues independent of welding torch activation status.